

**IN THE UNITED STATES DISTRICT COURT  
DISTRICT OF UTAH, CENTRAL DIVISION**

FILED  
U.S. DISTRICT COURT  
2015 MAY 18 P 2:00

ICON HEALTH & FITNESS, INC.,

Plaintiff,

v.

POLAR ELECTRO OY et al.,

Defendants.

DISTRICT OF UTAH

**MEMORANDUM OPINION & ORDER  
REGARDING CLAIM CONSTRUCTION**

Case No.: 1:11-cv-00167-BSJ

Honorable Bruce S. Jenkins

**I. Procedural History**

On November 18, 2011, ICON Health & Fitness, Inc. (“ICON”) filed a Complaint against Polar Electro Oy. (“Polar Oy”) asserting infringement of U.S. Patent No. 7,789,800 (“‘800 patent”) and U.S. Patent No. 6,701,271 (“‘271 patent”). (Dkt. No. 1). On June 8, 2012, ICON filed an amended complaint against Polar Oy and Polar Electro, Inc. (“Polar Inc.”) (collectively “Polar”) asserting infringement of the ‘800 patent, the ‘271 patent, and an additional patent, U.S. No. 6,921,351 (“‘351 patent”). (Dkt. No. 9). The case was stayed with respect to the ‘800 patent and the ‘271 patent pending finalization of reexamination proceedings for those patents. (Dkt. No. 51).

On January 10, 2014, the Court held a Markman hearing to hear arguments on proposed claim constructions for asserted claims 1 and 5 of the ‘351 patent, including the terms “in-band communication,” “out-of-band communication,” “out of-band device,” and the claimed “relationship” between the out-of-band communication and the in-band communication. (*See, e.g.*, Dkt Nos. 58, 69, 71). In light of *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S.Ct. 2120

(2014), the court heard re-argument on August 21, 2014, which was followed by supplemental briefing. (*See, e.g.*, Dkt Nos. 77, 78).

The Court thereafter requested the assistance of those skilled in the art to aid in the construction of the claim terms and ordered the parties to designate experts and conduct expert discovery. (Dkt No. 81). Following the close of expert discovery Polar filed a motion for partial summary judgment of invalidity based on the ‘351 patent’s failure to define the claimed “relationship” for those skilled in the art with reasonable certainty. (Dkt Nos. 84, 97-100). ICON thereafter filed an additional expert declaration. (Dkt No. 87). Polar moved to strike the additional expert declaration. (*See* Dkt. Nos. 89 – 94).

The parties filed supplemental claim construction briefs on February 13, 2015. (Dkt Nos. 85, 86). The court held an evidentiary hearing on February 27, 2015 to hear expert testimony from the parties’ respective experts, followed by oral argument on March 30, 2015 focusing on the terms “in-band communication,” “out-of-band communication,” “out of-band device,” and the claimed “relationship” between the out-of-band communication and the in-band communication.

The issue before the Court is broader than the limited summary judgment filed by Polar. It involves the broader subject of whether the claims are genuinely capable of construction, with all do deference to the U.S. Patent and Trademark Office and presumption of validity provided by 35 U.S.C. § 282. The Court therefore addresses the broader issue of validity in accordance with its duty as the construer of the patent claims.<sup>1</sup>

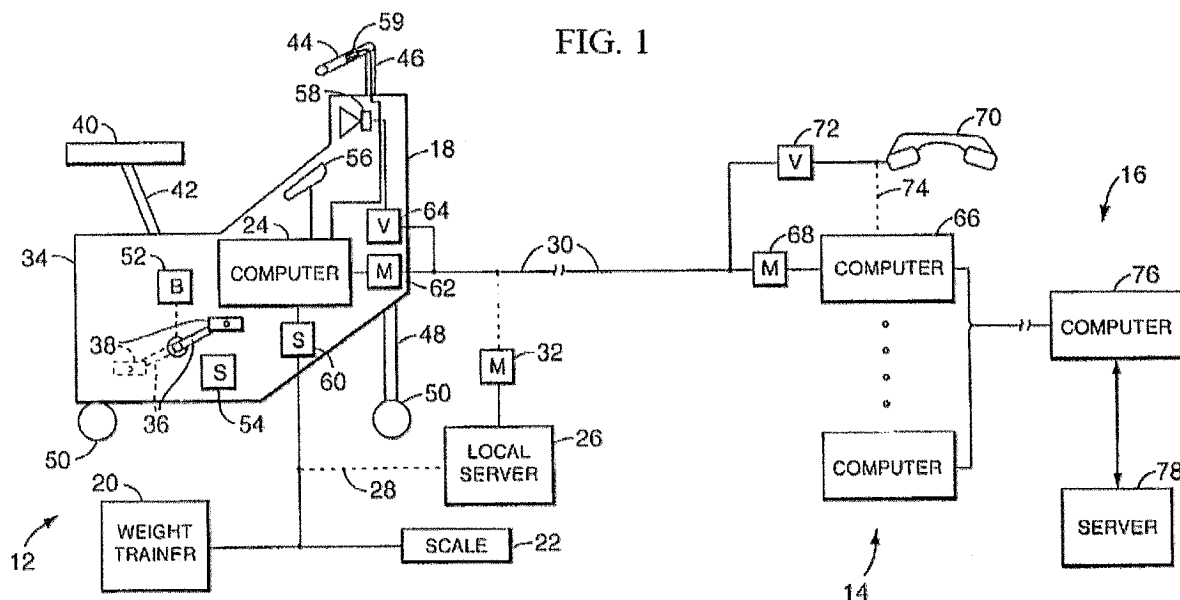
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<sup>1</sup>At the close of the March 30, 2015 hearing, after orally ruling that the ‘351 patent was invalid for indefiniteness, the court specifically reserved the right to alter or add to its oral ruling in its final written order. *See* Hr’g 3/30/15 Tr., (CM/ECF No. 104), 4:19-5:2. Such additions are reflected in this written opinion.

## II. The '351 Patent

### A. Summary of the '351 Patent

The '351 patent discloses an exercise and health system that includes computerized exercise and/or health equipment. (Dkt. No. 77-2, p. 35 of 50, '351 patent, col. 2:22-25). Figure 1 of the '351 patent shown below is an example of the patent's computer network exercise system. (*Id.*, p. 36 of 50, '351 patent, col. 3:59-60). In Figure 1, a computer 24 in bicycle 18 is connected by a line 30 (which can be the Internet) to a remote computer 66, which is connected to server station 16. (*Id.*, p. 38 of 50, '351 patent, col. 7:33-37; col. 8:14-16). The '351 patent divides its system into two parts: a local system 12 on the left hand side of line 30, (*Id.*, p. 37 of 50, '351 patent, col. 5:14-15), and a remote system on the right hand side of line 30. *Id.*, p. 37 of 50, '351 patent, col. 5:14-16). The local system 12 "can provide feedback and encouragement to the user, i.e. can serve as a 'virtual personal trainer.'" (*Id.*, p. 35 of 50, '351 patent, col. 2:23-28, 36-38).



The local system 12 also includes two subparts: an exercise device such as a stationary bicycle 18 with a computer 24; (Dkt. No. 77-2, p. 37 of 50, '351 patent, col. 5:37-41) and a local

server, such as 26 shown above in Figure 1. The '351 patent discloses that the local server 26 need not be a separate computer. (*Id.*, p. 37 of 50, '351 patent, col. 5:45-57). For example, in the preferred embodiment, the computer 24 plays a dual role: the computer for bicycle 18, and "a 'local server' for other health and fitness devices at local system 12, such as the weight trainer 20 and the scale 22." (*Id.*, p. 37 of 50, '351 patent, col. 5:45-57).

Figure 13 shows another embodiment of the computer network exercise system. (Dkt. No. 77-2, p. 42 of 50, '351 patent, col. 16:16-20). The '351 patent describes it as "a remote interactive exercise and health system in accordance with the present invention." (*Id.*, p. 36 of 50, '351 patent, col. 4:22-23).

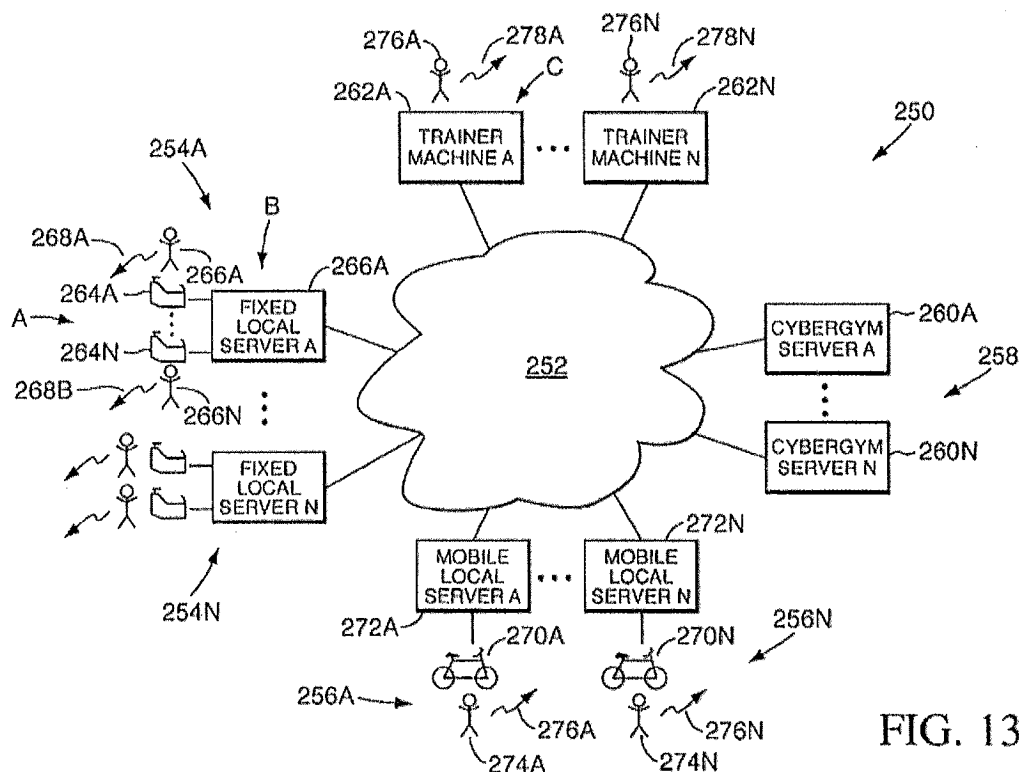
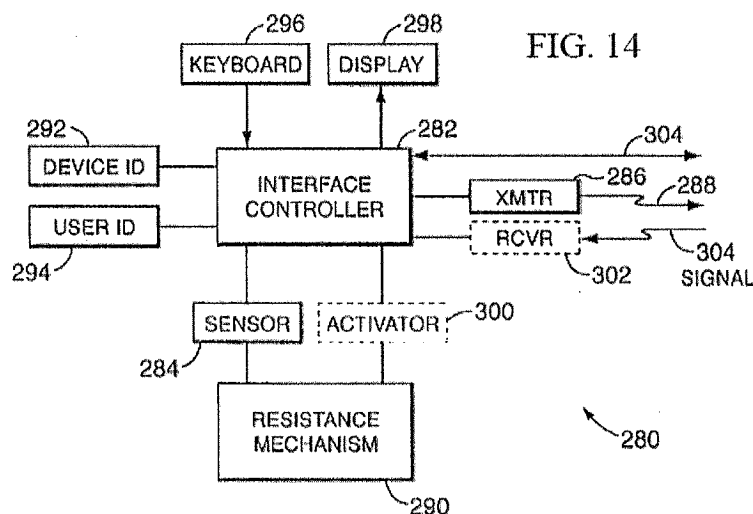


FIG. 13

While this embodiment has additional features, it also has the basic two parts of the Figure 1 network: local systems and remote servers. (Dkt. No. 77-2, p. 42 of 50, '351 patent, col. 16:20-24). The local servers are connected through the Internet (252) to remote servers (260A - 260N).

(*Id.*, col. 16:20-26; col. 16:39-41; Dkt. 77-2, p. 43 of 50, '351 patent, col. 17:47-49). Two additional features of this embodiment compared to Figure 1 are mobile exercise devices, like bicycle 270A, and trainer machines (262A - 262N) staffed by trainers (276A - 276N). (*Id.*, p. 43 of 50, '351 patent, col. 17:19-21, 61-62).

Figure 14 is a block diagram of an exercise device circuit which can be associated with, for example, an exercise device 264A-264N or 270A-270N. (Dkt. No. 77-2, p. 43 of 50, '351 patent, col. 18:28-32). An exercise device controller 280 includes an interface controller 282. (*Id.*).



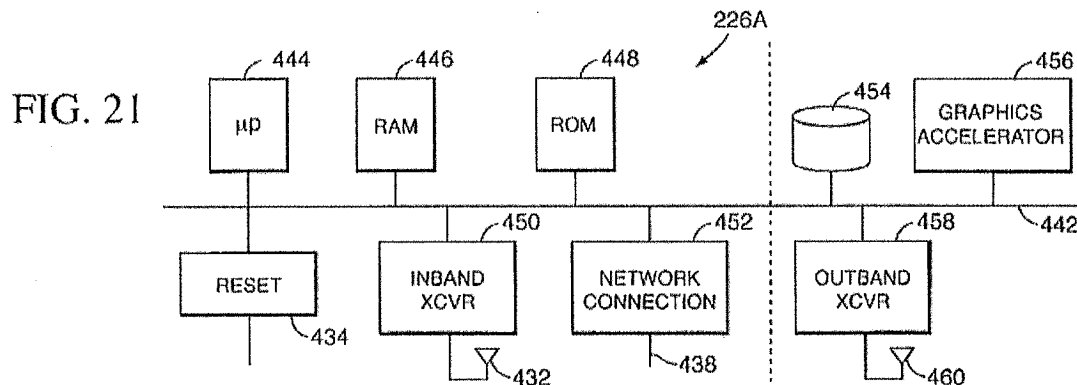
The '351 patent explains the in-band and out-of-band communications between the interface controller 282 and the rest of the system stating

[c]ommunications between the interface controller and the rest of the system 250 through the transmitter 286 and the optional receiver 302 comprise "*in-band*" communication. However, there can also be *out-of-band* communication signals 304 between the controller 280 and, for example, a local server 266A. These "*out-of-band*" signals can include, for example, high speed data communication to provide real time video (e.g. streaming video over the Internet) on the display 298.

(*Id.*, p. 44 of 50, '351 patent, col. 19:22-30 (emphasis added)).

By this passage, the ‘351 patent teaches that there can be out-of-band communication signals between exercise device controller 280 and the local server 266A. (*See also* February 27, 2015 Hearing Transcript, p. 25:8 – p. 26:15; p. 86:16 – p. 87:10).

Figure 21 shows a typical computer architecture for a server 226A. (Dkt. No. 77-2, p. 46 of 50, ‘351 patent, col. 23:14-15). The out-of-band transceiver 458 is shown as a wireless transceiver. (*Id.*, col. 24:7-8).



These passages of the ‘351 patent teach that out-of-band communications can be wireless. (*See also* February 27, 2015 Hearing Transcript, p. 87:22-25)

### B. Summary of the “351 Patent Prosecution History

The ‘351 patent was filed on October 19, 2001. (Dkt. No. 77-2, p. 2 of 50). By an Office action dated June 15, 2004, all pending claims were rejected under 35 U.S.C. 102(b) as being anticipated by Watterson. (Dkt. No. 77-3, p. 4 of 5). In response, the applicants amended claim 1 from its original text of “said exercise apparatus and said local server communicating with a bi-directional wireless protocol,” by making the changes shown below.

1. (currently amended) An exercise system comprising:

a local system including at least one exercise apparatus and at least one associated local server, said at least one local server monitoring the operation of said at least one exercise apparatus, said exercise apparatus and said local server having an in-band communication using communicating—with a bi-directional wireless protocol;

an out-of-band communication with a user of said at least one exercise apparatus, wherein said out-of-band communication has a relationship to said in-band communication;

(Dkt. No. 77-4, p. 3 of 10).

The applicants also amended claim 5 from its original text of “at least one exercise apparatus having a bi-directional wireless communication device,” by making the changes shown below.

5. (currently amended) An exercise system comprising:

at least one exercise apparatus having a an in-band bi-directional wireless communication device;

an out-of-band communication device capable of a communication with a user of said at least one exercise apparatus that has a relationship to said in-band communication;

(*Id.*, p. 4 of 10)

The applicants argued that Watterson did not anticipate the amended claims, stating.

One of the aspects of an embodiment of Applicant is the use of in-band communication in conjunction with out-of-band communication in an exercise system. See, for example, Applicant's Fig. 13 and accompanying description on page 28, lines 19-29. Watterson '060 does not hint of such a combination. Another aspect is the wireless communication between an exercise device with an exercise device ID. Again, there is no disclosure of such a combination with Watterson '060. Applicant therefore respectfully requests that the rejections based upon Watterson '060 be withdrawn.

(*Id.*, p. 9 of 10)

The application was then allowed for issuance as a patent (Dkt. No. 77-5), and the '351 patent issued on July 26, 2005. (Dkt. No. 77-2, p. 2 of 50).

### III. Legal Standards

Claim construction is a question of law. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (*en banc*). The Court determines the meaning of disputed claim terms as understood by one of ordinary skill in the art at the time of the invention. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*). Claim terms generally should be given their ordinary and customary meaning to a person of skill in the art at the time of the invention. *See id.* To determine the ordinary meaning, the Court first looks to the intrinsic evidence, which includes the claims, the specification and the prosecution history (i.e., the history of the proceedings before the United States Patent and Trademark Office). *See id.* at 1312-1317.

The claim language is the starting point for claim interpretation, and can “provide substantial guidance as to the meaning of particular claim terms.” *Id.* at 1314. The differences between claims also can assist the Court in construing claim terms. *Id.* Extrinsic evidence, such as dictionaries, also may be consulted by a Court to assist it in understanding the disputed terms. *Id.* at 1318.

“A determination of claim indefiniteness is a legal conclusion that is drawn from the court’s performance of its duty as the construer of patent claims.” *Personalized Media Communications, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 705 (Fed. Cir. 1998). In *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S.Ct. 2120, 2130 (2014), the Supreme Court rejected a standard that allowed indefiniteness up to “insolubly ambiguous,” stating

To tolerate imprecision just short of that rendering a claim “insolubly ambiguous” would diminish the definiteness requirement’s public-notice function and foster the innovation-discouraging “zone of uncertainty,” *Union Carbide*, 317 U.S. [228], at 236, against which this Court has warned.

*Id.*



The Supreme Court rested its decision on the Patent Act's statutory requirement of clarity and precision, stating

The Patent Act requires that a patent specification "conclude with one or more claims *particularly pointing out and distinctly claiming* the subject matter which the applicant regards as [the] invention." 35 U.S.C. § 112, ¶ 2 . . . This case . . . concerns the proper reading of the statute's clarity and precision demand.

*Id.* at 2124 (emphasis in original).

Accordingly, the Supreme Court reigned in the tolerated ambiguity from "insolubly ambiguous," to requiring claim language that defines the invention for those skilled in the art with "reasonable certainty," stating

a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.

*Id.* at 2129.

The Supreme Court in *Nautilus* held that "[i]t cannot be sufficient that a court can ascribe *some* meaning to a patent's claims; the definiteness inquiry trains on the understanding of a skilled artisan at the time of the patent application, not that of a court viewing matters *post hoc*. To tolerate imprecision just short of that rendering a claim 'insolubly ambiguous' would diminish the definiteness requirement's public-notice function and foster the innovation-discouraging 'zone of uncertainty.'" *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. at 2130, *quoting* *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236 (1942) (emphasis in original).

To satisfy the definiteness standard, the "claims, when read in light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art."

*Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (quoting *Nautilus*, 134 S.Ct., at 2130). That is, a “patent’s claims, viewed in light of the specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 134 S.Ct. at 2129. Thus, a claim is invalid if it fails to define the invention with reasonable certainty for those skilled in the art. *Id.* at 2124.

When interpreting claim terms, claim terms “cannot be interpreted differently in different claims because claim terms must be interpreted consistently.” *Southwall Technologies, Inc. v. Cardinal IG Company*, 54 F.3d 1570, 1579 (Fed. Cir. 1995), *citing Fonar Corp. v. Johnson & Johnson*, 821 F.2d 627, 632 (Fed. Cir. 1987).

#### **IV. Analysis**

In construing a patent claim, the court looks first to intrinsic evidence of record, i.e. the patent itself, including all claims as the most significant source of the legally operative meaning of disputed claim language. *See Phillips*, 415 F.3d at 1314. In this case, however, given the language of the claims and the discussion of the technology in the specification, that exercise proved to be daunting. The Court therefore requested the parties to offer the views of their respective experts so as to provide a substantive footing to assist the Court in trying to adequately construe the claims, particularly in light of the question of indefiniteness being assessed from the viewpoint of one of skill in the art. The Court found the testimony by the experts quite helpful, particularly because “definiteness is to be evaluated from the perspective of one skilled in the relevant art.” *Nautilus*, 134 S.Ct. at 2128. Each expert purported to proffer the same testimony that he would offer at trial.

### A. In-Band Communication and Out-Of-Band Communication

The claim terms “in-band communication” and “out-of-band communication” appear in both claim 1 and claim 5 of the ‘351 patent. The following table shows the relevant claim language, with the claim terms in italics.

Claim 1	Claim 5
said exercise apparatus and said local server having <i>an in-band communication</i> using a bid-directional wireless protocol; <sup>[2]</sup>	at least one exercise apparatus having an <i>in-band bi-directional wireless communication device</i> ;
<i>an out-of-band communication</i> with a user of said at least one exercise apparatus,	an <i>out-of-band communication</i> device capable of a communication with a user of said at least one exercise apparatus <i>that has a relationship to said in-band communication</i>
wherein said <i>out-of-band communication has a relationship to said in-band communication</i> ;	

#### 1. The Interchangeable Use of “Communication,” “Experience,” and “Interaction”

The claim terms “in-band communication” and “out-of-band communication” both use the term “communication. The ‘351 patent uses the terms “communication,” “experience,” and “interaction” in an apparently interchangeable manner. For example, the ‘351 patent calls the “true out-of-band” an “experience,” and then provides a cellular call between a user and a personal trainer as an example. Such a telephone call between the user and the personal trainer is also referred to as an “out-of-band communication.” (Dkt. No. 77-2, p. 43 of 50, ‘351 patent, col. 17:62 - col. 18:1). The ‘351 patent also refers to such a call as an “out-of-band interaction.” (*Id.*, p. 42 of 50, ‘351 patent, col. 16:62-63). These passages suggest that the ‘351 patent uses the terms “communication,” “experience,” and “interaction” interchangeably to describe “out-of-band.” Both experts agreed that the ‘351 patent uses the words “interaction” and “communication” interchangeably. (Dkt. No. 85-1, Islam Deposition Transcript 258:6-22 (“I

<sup>2</sup>The parties agree the “bid-directional” is a typographical error, and should be read as “bi-directional.”

think I probably read past that, meaning I didn't make a distinction there."); *Id.* at 24:21 – 25:6; and Dkt. No. 85-2, Heppe Deposition Transcript 48:13-21). Accordingly, the Court looks to all such passages in the '351 patent in its effort to ascertain a meaning for the claim terms.

## **2. The Use of “In-Band” and “Out-of-Band” in the Specification**

In addition to the specific teachings of the '351 patent discussed above, as an aid in the Court's effort to construe and distinguish “in-band communication” and “out-of-band communication,” the Court reviewed all of the passages in the '351 patent that mention “out-of-band.” These passages refer to “out-of-band” in a variety of different ways, including: (i) high bandwidth interactions (Dkt. No. 77-2, p. 43 of 50, '351 patent, col. 17:7-12), (ii) high speed data connection to provide real time video (*Id.*, p. 42 of 50, '351 patent, col. 16:57-61), (iii) users interacting with the system shown by arrows 268A and 268B in Figure 13 above (*Id.*, p. 42 of 50, '351 patent, col. 16:50-56), and (iv) cellular telephone calls with a personal trainer (*Id.*, p. 42 of 50, '351 patent, col. 16:62-63; *Id.*, p. 43 of 50, '351 patent, col. 17:42-46, col. 17:66 – col. 18:1).

### **a) In-Band and Out-of-Band Can Have the Same Data Rate**

The specification of the '351 patent also teaches that both “in-band communication” and “out-of-band communication” can be high speed communications. (“out-of-band experiences [276A-276N shown Figure 13] can be high speed data connections to the local mobile computer.” (Dkt. No. 77-2, p. 43 of 50, '351 patent, col. 17:43-46); “in-band” communications can be high speed communications with the exercise apparatus controller. (*Id.*, col. 17:16-18; Dkt. No. 77-2, p. 46 of 50, '351 patent, col. 24:15-22). Thus, the specification does not provide a basis for distinguishing “in-band communication” and “out-of-band communication” on the basis of data rate. (*See, e.g.*, February 27, 2015 Hearing Transcript, pp. 88:20 – 89:9; *See also*, Dkt. No. 85-3, ¶¶ 81-82, 85-87).

**b) In-Band and Out-of-Band Can Have the Same Content**

The specification of the ‘351 patent teaches that both “in-band communication” and “out-of-band-communication” can have the same content. As an example, the ‘351 patent states

streaming video and/or audio, video files, audio files, graphics, etc.  
can be provided to the user and/or the trainer through an in-band or  
out of band communications link.

(Dkt. No. 77-2, p. 43 of 50, ‘351 patent, col. 18:1-4).

The ‘351 patent specification therefore does not provide a basis for distinguishing “in-band communication” and “out-of-band communication” on the basis of content. (*See, e.g.*, February 27, 2015 Hearing Transcript, p. 89:10-15; *See also*, Dkt. No. 85-3, ¶¶ 90-91).

**c) In-Band and Out-of-Band Can Have the Same Frequency**

The specification of the ‘351 patent does not distinguish “in-band communication” and “out-of-band communication” on the basis of frequency. (*See, e.g.*, February 27, 2015 Hearing Transcript, p. 88:20-25; *See also*, Dkt. No. 85-3, ¶¶ 92-94). Thus, the specification does not provide a basis for distinguishing “in-band communication” and “out-of-band communication” on the basis of frequency. (*See, e.g.*, February 27, 2015 Hearing Transcript, p. 88:20-25).

**d) In-Band and Out-of-Band Can Use the Same Protocol and Channel, Such as a Bi-Directional Protocol on a Wireless Channel**

The claims of the ‘351 patent specify an in-band communication using a bi-directional wireless protocol. (*See e.g.*, Dkt 77-2, pp. 49-50 of 50, ‘351 patent, col. 30:42-43; col 31:4-5). The specification of the ‘351 patent teaches that “out-of-band communication” can also be wireless (February 27, 2015 Hearing Transcript, p. 87:22-25, p. 88:3-7; Dkt. No. 85-3, ¶¶ 83-84), and can employ a bi-directional protocol. (February 27, 2015 Hearing Transcript, p. 88:3-7). Thus, the specification does not provide a basis for distinguishing “in-band communication” and

“out-of-band communication” on the basis of protocol or channel. (*See, e.g.*, February 27, 2015 Hearing Transcript, pp. 88:13-19, pp. 88:20 – 89:20; pp. 104:25 – 105:7).

**e) In-Band and Out-of-Band Can Have the Same Connectivity**

The discussion of Figure 14 shows that both “in-band communication” and “out-of-band communication” can have the same connectivity – between the exercise device controller 280 and a local server 266A. (*See, e.g.*, February 27, 2015 Hearing Transcript, pp. 86:16 – 87:21; *See also*, Dkt. No. 85-3, ¶¶ 79-80, 88-89). Communications with a user can be “in-band communication” and can be “out-of-band communication.” (Dkt. No. 77-2, p. 43 of 50, ‘351 patent, col. 17:34-42). Thus, the specification does not provide a basis for distinguishing “in-band communication” and “out-of-band communication” on the basis of connectivity. (*See, e.g.*, February 27, 2015 Hearing Transcript, pp. 86:16 – 87:21, p. 88:3-7, 13-19; p. 104:21-24).

**f) In-Band Can Be Out-of-Band**

The specification of the ‘351 patent teaches that “out-of-band interaction can also be performed in-band.” (Dkt. No. 77-2, p. 42 of 50, ‘351 patent, col. 16:64-65; *See also, Id.*, p. 43 of 50, ‘351 patent, col. 17:16-18; and *Id.*, p. 46 of 50, ‘351 patent, col. 24:18-22). The specification therefore does not provide a basis for distinguishing “in-band communication” and “out-of-band communication” on the basis of connectivity, protocol (e.g., bidirectional), (e.g., wireless), information content, or as being with a user.

The ‘351 patent specification does not provide one skilled in the art with any clear teaching of how to distinguish between in-band versus out of band. (February 27, 2015 Hearing Transcript, pp. 88:20 - 89:20).

### **3. The Use of “In-Band” and “Out-of-Band” in the Prosecution History**

During prosecution of the application that led to the ‘351 patent, the applicants argued that the prior art cited by the Examiner, Watterson ‘060, did not anticipate the amended claims. The applicants stated.

One of the aspects of an embodiment of Applicant is the use of in-band communication in conjunction with out-of-band communication in an exercise system. See, for example, Applicant’s Fig. 13 and accompanying description on page 28, lines 19-29. Watterson ‘060 does not hint of such a combination. Another aspect is the wireless communication between an exercise device with an exercise device ID. Again, there is no disclosure of such a combination with Watterson ‘060. Applicant therefore respectfully requests that the rejections based upon Watterson ‘060 be withdrawn.

(Dkt. No. 77-4, p. 9 of 10)

This passage discussion of the use of “in-band communication” in conjunction with “out-of-band communication” suggests that the applicants considered the terms to be different. (February 27, 2015 Hearing Transcript, p. 80:1-16). Other than asserting the use of “in-band communication” in conjunction with “out-of-band communication,” the statement does not aid one skilled in the art in discerning a difference between the two terms. *Id.*

Pursuant to 35 U.S.C. § 282 issued U.S. patents have a presumption of validity, including the presumption that patent Examiners performed their job correctly. Looking at the claim amendments offered by the patent applicants, one skilled in the art would assume that the applicants had added the use of in-band communication in conjunction with out-of-band communication to distinguish over the prior art. (February 27, 2015 Hearing Transcript, p. 92:7-18). Based on one skilled in art’s general knowledge and the intrinsic record summarized above, one skilled in the art would not understand how to distinguish in band versus out-of-band, and

thus one skilled in the art would not understand how the amendment distinguishes over the prior art. (*Id.* at p. 92:19-22). In addition, as noted more fully below, one skilled in the art would understand that the terms “in-band communication” and “out-of-band communication” are relative terms. (*See, e.g.*, February 27, 2015 Hearing Transcript, pp. 91:13 – 92:6). Without a reference, one skilled in the art would not be able to understand what comprises an “in-band communication” or and “out-of-band communication” or how the applicants intended to distinguish over the prior art. (*Id.*). The evidence of one skilled in the art looking at the prosecution history in view of the ‘351 patent shows that the presumption does not help in this case.

#### **4. The Use of “In-Band” and “Out-of-Band” in the Claims**

Polar’s expert, Dr. Heppe, testified that “looking at the words of the claim, nothing in this claim defines what is in or out, what is in-band communication or out-of-band communication.” (February 27, 2015 Hearing Transcript, pp. 84:17 – 85:2; 85:14 – 86:-15, *See also*, Dkt. No. 85-3, ¶¶ 56-68). Claim 1, in addition to reciting the term “in-band communication,” also recites that “in-band communication” (i) occurs between and exercise device and a local server (i.e., the connectivity or participants to the communication); (ii) is bi-directional; and (iii) is wireless. (*See also* February 27, 2015 Hearing Transcript, p. 86:19-24).

Claim 5 recites an exercise system, and, in pertinent part reads

at least one exercise apparatus having an in-band bi-directional  
wireless communication device

The in-band communication device recited by claim 5 shares two features with the “in-band communication” of claim 1: it is bi-directional and it is wireless. The plain language of claim 5 does not recite what the “in-band bi-directional wireless communication device” is connected to, and it does not recite with whom or with what the claimed “in-band bi-directional wireless



communication device” communicates. (Dkt. No. 77-2, p. 50 of 50, ‘351 patent, col. 31:4-10). Thus, claim 5 does not recite the “connectivity” recited by claim 1 for the “in-band communication.”

ICON’s expert, Dr. Islam testified that the claims clearly define “in-band” via claimed connectivity, that it is bi-directional, and that is wireless, “no matter what you call it that is very well defined and is clearly understood by one of ordinary skill in the art.” (February 27, 2015 Hearing Transcript, p. 49:15 – 50:-14; *See also*, p. 33:2-10; p. 38:6 - 39:6, p. 39:7-23; p. 41:20 – 42:7).<sup>3</sup> The language of claim 5, unlike claim 1, does not recite the connectivity of the recited “in-band bi-directional wireless communication device,” i.e., what it is connected to or with whom or with what it communicates. Thus, the plain language of claim 5 does not define “in-band” by reciting a connectivity, which is one of the elements ICON’s expert proposed to use to define “in-band communication.” This difference is notable “because claim terms must be interpreted consistently.” *Southwall Technologies, Inc. v. Cardinal IG Company*, 54 F.3d 1570, 1579 (Fed. Cir. 1995). The interpretation of “in-band” based on connectivity, bi-directional, and wireless, does not apply to the plain language of claim 5.

In view of the testimony and the intrinsic record, the language of the claims is not helpful in understanding and distinguishing “in-band communication” and “out-of-band communication.” (February 27, 2015 Hearing Transcript, pp. 84:17 – 85:2. 85:14 – 86:15; *See also*, Dkt. No. 85-3, ¶¶ 56-68).

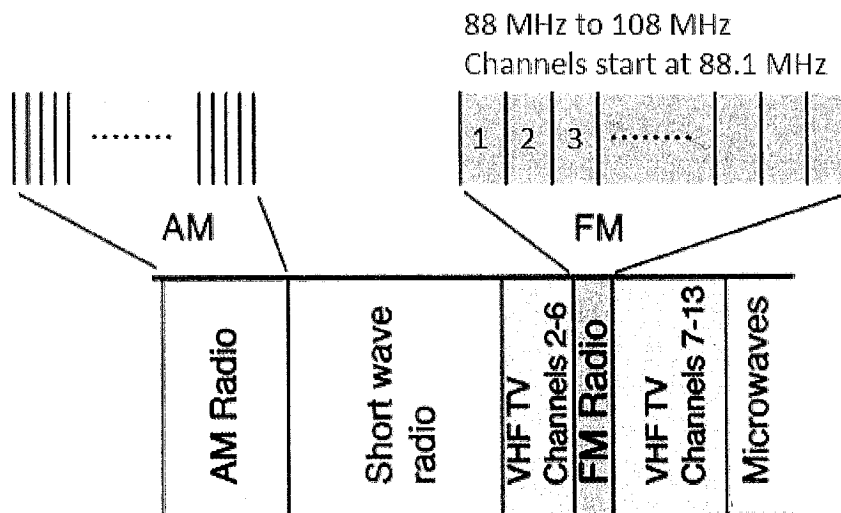
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<sup>3</sup>ICON also asserts that “in-band communication is communication to or from the exercise apparatus.” (February 27, 2015 Hearing Transcript, p. 33:20-25). And, ICON asserts that “out-of-band communication” is any communication other than in-band communication. (*Id.*, p. 34:1-6). ICON’s expert testified that with these definitions, once in-band is defined, then out-of-band is communication other than that. (*Id.*, p. 40:9-11). He also testified, however, that it is not correct that anything other than in-band communication is out-of band communication. (*Id.*, p. 35:6-36:2). As discussed with respect to Figure 14, *supra*, the ‘351 patent specification shows that both “in-band communication” and “out-of-band communications” can be to or from the exercise apparatus. These proposed definitions therefore do not square with the teachings of the ‘351 patent and do not help distinguish “in-band communication” from “out-of-band communication.”

### 5. “In-Band” and “Out-of-Band” Are Relative Terms

The modifiers “in-band” or “out-of-band” appear in each of the claim terms: “in-band communication,” “out-of-band communication,” and “out-of-band communication device.” The fundamental nature of these terms “is that ‘in-band’ and ‘out-of-band’ are relative terms that require a reference.” (February 27, 2015 Hearing Transcript, pp. 75:12 – 76:1; 82:8-15).

The Court considered whether and how the terms “in-band communication” and “out-of-band communication” may relate to frequency bands. The following illustrates a portion of a radio band that includes the AM radio band in pink and the FM radio band in blue. (*Id.*, p. 74:14-17). The AM band and the FM band are referred to as frequency bands. *Id.* The term “band” is a general and does not by itself define its boundaries. (*Id.*, p. 74:17-19, p. 75:1-3). In the following figure, the FM radio band is broken down into channels numbered as 1, 2, and 3, which can each be referred to as a band, or a sub-band. (*Id.*, p. 74:20-25). If a person was listening to channel 1, that channel could be considered “in-band” and the other channels would be considered “out-of-band.” (*Id.*, p. 75:3-9). If the user switched to channel 2, then that channel would be “in-band,” and channel 1 would be “out-of-band.” (*Id.*, p. 75:9-12).



This example illustrates that “in-band” and “out-of-band” have a general meaning to those skilled in the art, and that the terms are treated as distinct and separate. (February 27, 2015 Hearing Transcript, p. 75:9-16). It also illustrates that “in-band” and “out-of-band” are relative terms. (*Id.*, pp. 75:16 – 76:1). Depending upon the reference chosen, different things can be “in-band” and out-of-band,” as the two channels are in this example. (*Id.*, p. 77:13-15).

The terms “in-band” and “out-of-band” are not limited to frequency bands, and can be, e.g., different time slots within a stream of data. (February 27, 2015 Hearing Transcript, pp. 76:2 – 77:15; pp. 82:16 – 83:1; *See also*, Dkt. No. 85-3, Dr. Heppe Declaration, ¶¶ 62-64). Another use of the terms “in-band” and “out-of-band” can be to refer to communications between two computers, A and B. Depending upon the reference, communications from computer A could be “in-band,” and communications from computer B could be “out-of-band,” depending upon the reference selected as with the two channels in the example above. (February 27, 2015 Hearing Transcript, pp. 77:16 – 78:8).

The extrinsic evidence noted by the experts shows the use of a reference when using the terms “in-band” and “out-of-band” to distinguish the two terms. (February 27, 2015 Hearing Transcript, p. 78:10-24). In U.S. Patent No. 6,473,795, in-band refers to signals sent from the network management software in a synchronous wire, while out-of-band refers to signals sent via an asynchronous port. The reference chosen in this patent was the type of communication channel. (*Id.*, pp. 79:15 – 80:4). U.S. Patent No. 6,510,481 differentiates in-band from out-of-band by different periods of time and different protocols. (*Id.*, p. 80:5-18). U.S. Patent No. 5,257,396, U.S. Patent No. 5,497,187, and U.S. Patent No. 6,721,547 each differentiate in-band and out-of-band based on frequency bands. (*Id.*, pp. 80:19 – 81:7).

Similarly, William Stallings, “Data & Computer Communications,” Sixth Edition

(Prentice Hall, Upper Saddle River, New Jersey, 2000) ISBN 0-13-084370-9, differentiates in-band from out-of-band based on frequency. (February 27, 2015 Hearing Transcript, p. 81:8-14). The textbook Larry L. Peterson & Bruce S. Davie, "Computer Networks: A Systems Approach," (Morgan Kaufmann Publishers, San Francisco, California, 1996), ISBN 1-55860-368-9, uses different logical data flows to distinguish in-band data from out-of-band data, and defines out-of-band as separate from the normal data flow. (*Id.*, p. 81:15-22). Both S. Keshav, "An Engineering Approach to Computer Networking," (Addison-Wesley, Reading, Massachusetts, 1997), ISBN 0-201-63442-2, and "The CRC Handbook of Modern Telecommunications," Editors-in-Chief Patricia Morreale and Kornel Terplan, (CRC Press, 2001), ISBN 0-8493-3337-7, use different channels to differentiate between in-band and out-of-band. *Id.*, p. 81:23-24). Lastly, the textbook Paul E. Green, "Fiber Optic Networks," (Prentice Hall, Englewood Cliffs, New Jersey, 1993), ISBN 0-13-319492-2, differentiates in-band and out-of-band based on wavelength, time slots, or CDMA codes. (*Id.*, pp. 81:24-82:1).<sup>4</sup>

Each of the ten extrinsic prior art patents and text books cited by the experts defines a reference that allows the reader to differentiate in-band from out-of-band in relation to that reference. (February 27, 2015 Hearing Transcript, p. 82:8-15). The testimony together with the extrinsic patents and textbooks, show that those skilled in the art understand that the terms "in-band" and "out-of-band" are relative terms, and only have meaning in a given context with a defined reference, such as a frequency, a channel, a protocol, time slots, and data streams. (*See, e.g., id.*, pp. 82:8 – 83:2).

The language of the claims does not provide a reference for "in-band" and "out-of-band." (February 27, 2015 Hearing Transcript, pp. 85:14 – 86:5; p. 89:21-25; pp. 90:22 – 91:8). The

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<sup>4</sup>While Plaintiff objects to these extrinsic evidence citations (CM/ECF No. 110, at 5), the same are referred to by Plaintiff in Plaintiff's expert report (CM/ECF No. 87-1, at 18-28).

applicants did not define a reference band or equivalent in the prosecution history remarks discussed above. (*See, e.g., id.*, p. 90:1-21). Thus, one of ordinary skill in the art cannot determine with reasonable certainty what an in-band communication is or what an out-of-band communication is, because these terms require a reference and no reference is described or can be defined that is consistent throughout the intrinsic evidence for the ‘351 patent. (*Id.*, pp. 90:22 – 91:8). The terms are therefore ambiguous because they are not defined with reasonable certainty for one skilled in the art. *Nautilus*, 134 S.Ct. at 2129. Thus, the claims are invalid because they fails to define the invention with reasonable certainty for those skilled in the art. *Id.* at 2124.

**B. The Claimed Relationship Between “In-Band Communication and “Out-of-Band Communication”**

The claimed relationship between in-band communication and out-of-band communication appears in claim 1 and claim 5 as follows.

Claim 1	Claim 5
an out-of-band communication with a user of said at least one exercise apparatus, wherein said <i>out-of-band communication has a relationship to said in-band communication</i>	an <i>out-of-band communication</i> device capable of a communication with a user of said at least one exercise apparatus <i>that has a relationship to said in-band communication</i>

The term “relationship” does not appear in the ‘351 patent prior to the claims. (February 27, 2015 Hearing Transcript, p. 86:11-14; *See also*, Dkt. No. 98, p. 10 of 22, n. 4). In ordinary English, it is a very broad term that may mean an association between two things or events, and can encompass a number of different kinds of relationships, such as a physical relationship, a connection relationship, a conceptual relationship, a familial relationship, and a causal relationship. (Dkt. No. 84-1, Heppe Deposition Transcript 59:8 - 60:9, 60:10 – 61:15; *See also*, Dkt. No. 84-2, Heppe Declaration, ¶¶ 67, 110, Dkt. No. 84-2, Heppe Declaration, p. 7 of 8, ¶ k). The meaning of the word “relationship” is not, by itself, contested. It is the claimed

“relationship” between the “in-band communication” and “out-of-band” communication that the Court addresses, and whether the ‘351 patent defines the claimed “relationship” with reasonable certainty for one skilled in the art.

The out-of-band communication of claim 1, shown in the above table, does not require any structure for the out-of-band communication, and the language does not exclude verbal conversations. (February 27, 2015 Hearing Transcript, p. 93:17-19). For example, the plain language covers a user’s conversations with, for example, a personal trainer, who may be coaching the user. (*Id.*, p. 93:19 – p. 94:6; *See also*, Dkt. No. 85-3, Heppe Declaration, ¶ 65). Similarly, if the personal trainer were using a cell phone, the communication would be a true out-of-band communication and fall within both claim 1 and claim 5. (February 27, 2015 Hearing Transcript, p. 94:7-22; *See also*, Dkt. No. 85-3, Heppe Declaration, ¶¶ 83-84).

The language of the claims does not place a temporal limitation on the out-of-band communication; it could be before, during, or after exercising. (February 27, 2015 Hearing Transcript, p. 95:3-25). The out-band-communication could be a conversation, verbal or by cell phone with the user’s spouse about the exercise device and whether to buy it. (*Id.*, p. 95:3-25; *See also*, Dkt. No. 85-3, Heppe Declaration, ¶ 66). The out-of-band communication could be after the purchase, such as an email from the manufacturer asking about the user’s exercise habits. (February 27, 2015 Hearing Transcript, p. 96:6-17). The “out-of-band communication” claim 1 could also be a conversation with a nearby fellow exerciser about the exercise, such as how many calories the user has burned. (*Id.*, p. 96:17-25).

There is no basis in the claim or the specification to include or exclude such communications from the scope of the claimed relationship. One skilled in the art has no way to navigate the possibilities. (February 27, 2015 Hearing Transcript, p. 97:2-8, *See also, id.*, p.

93:2-8, p. 94:2-6, p. 94:22 – 95:2, p. 95:23 – p. 96:5; *See also*, Dkt. No. 84-2, Heppe Declaration, ¶¶ 111-112, Heppe Declaration, p. 7 of 8, ¶ k). There is no guidance of what comprises the “out-of-band communication” having a relationship to the “in-band communication.” (February 27, 2015 Hearing Transcript, p. 94:22-24; pp. 95:3 – 96:5; pp. 96:6 – 97:25).

The claimed “relationship” term is therefore ambiguous because it is not defined with reasonable certainty for one skilled in the art. *Nautilus*, 134 S.Ct. at 2129. Thus, the claims are invalid because they fail to define the invention with reasonable certainty for those skilled in the art. *Id.* at 2124.

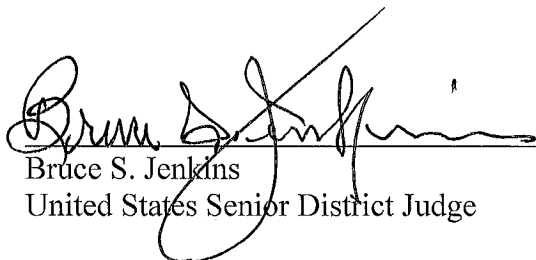
## V. Conclusion

Having determined that the ‘351 patent’s claim terms—specifically, “in-band,” “out-of-band,” and “relationship”—are ambiguous and incapable of construction, and having determined that the ‘351 patent’s claims, “read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention,” the court holds that the ‘351 is invalid for indefiniteness. *Nautilus*, 134 S.Ct. at 2124.

As such, the court orders that Plaintiff’s claim against Defendants for infringement of the ‘351 patent is DISMISSED WITH PREJUDICE.

Let judgment be entered accordingly.

DATED this 18<sup>th</sup> day of May, 2015.

  
 Bruce S. Jenkins  
 United States Senior District Judge